

Telecommunications Company Customers' Churn Rate Analysis

Churn Explanation

Churn is the measure of how many customers stop using a product. This can be measured based on actual usage or failure to renew (when the product is sold using a subscription model). Often evaluated for a specific period of time, there can be a monthly, quarterly, or annual churn rate.

Objectives:

1. Check if the churn rate is considered high.
2. Find correlations between customers' personal data/demographics, account status and information, usage data and customers' churn.
3. Analyze reasons for churn if listed in customer feedback data.
4. Deduce possible reasons that lead to customers churning if not listed in customer feedback data.

Categories of data gathered (in Excel worksheet):

- **Customer's personal data:** Customer ID, State, Phone Number, Gender, Age, Under 30 (Yes/No), Senior (Yes/No).
- **Account type and info:** Account Length (in months), Unlimited Data Plan (Yes/No), Contract Type, Payment Method (most common method).
- **Account usage data:** Local Calls, Local Mins, Intl Calls, Intl Mins, Intl Active (Yes/No), Intl Plan (Yes/No), Extra International Charges, No. of customer Service Calls, Avg Monthly GB Download, Extra Data Charges, Group (Yes/No), Number of Customers in Group, Device Protection & Online Backup, Monthly Charge (average) and Total Charges.
- **Churn status and info:** Churn Label, Churn Category, Churn Reason.

Data Analysis and Insights

Overall Churn Percentage

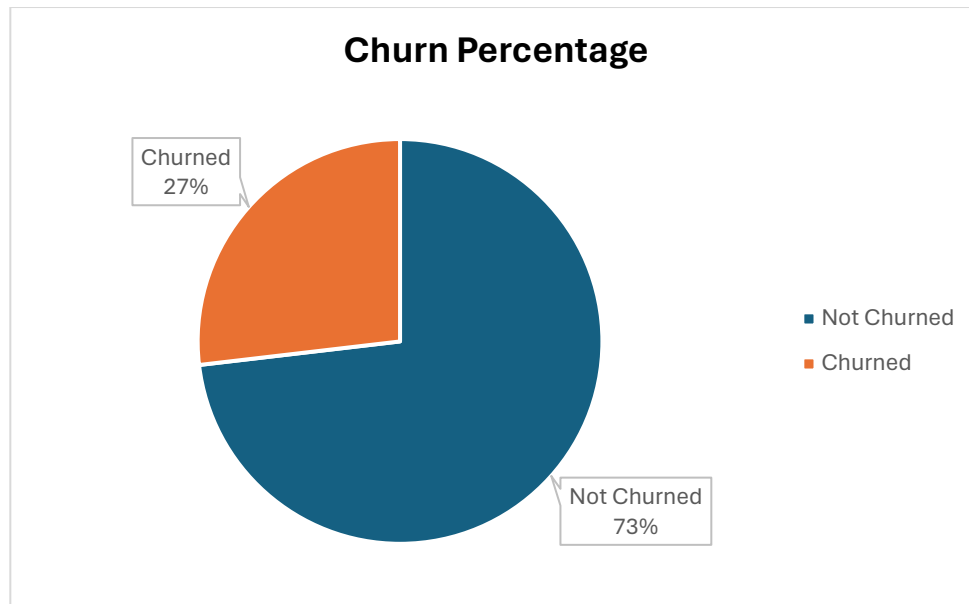


Figure 1

The **total number of customers is 6,687** and through filtering we find out that the **total number of customers who churned is 1,796**. Therefore, the **percentage of customers who churned is almost 26.9 %**. There's almost a **1:4 ratio of customers churning**.

According to *CustomerGauge*, the **telecommunications industry** has an **average annual churn rate of around 31%**, with significant fluctuations depending on market conditions and customer satisfaction efforts ([CustomerGauge](#)) ([Recurly, Inc.](#)).

Our data is a snapshot of records with no mention for the duration over which it was collected i.e. it is not pertaining to a specific year or time interval. However, **26.9 % is less than 31 % which is reasonable for the industry**.

Demographics Insights

- **Gender vs Churn Total**

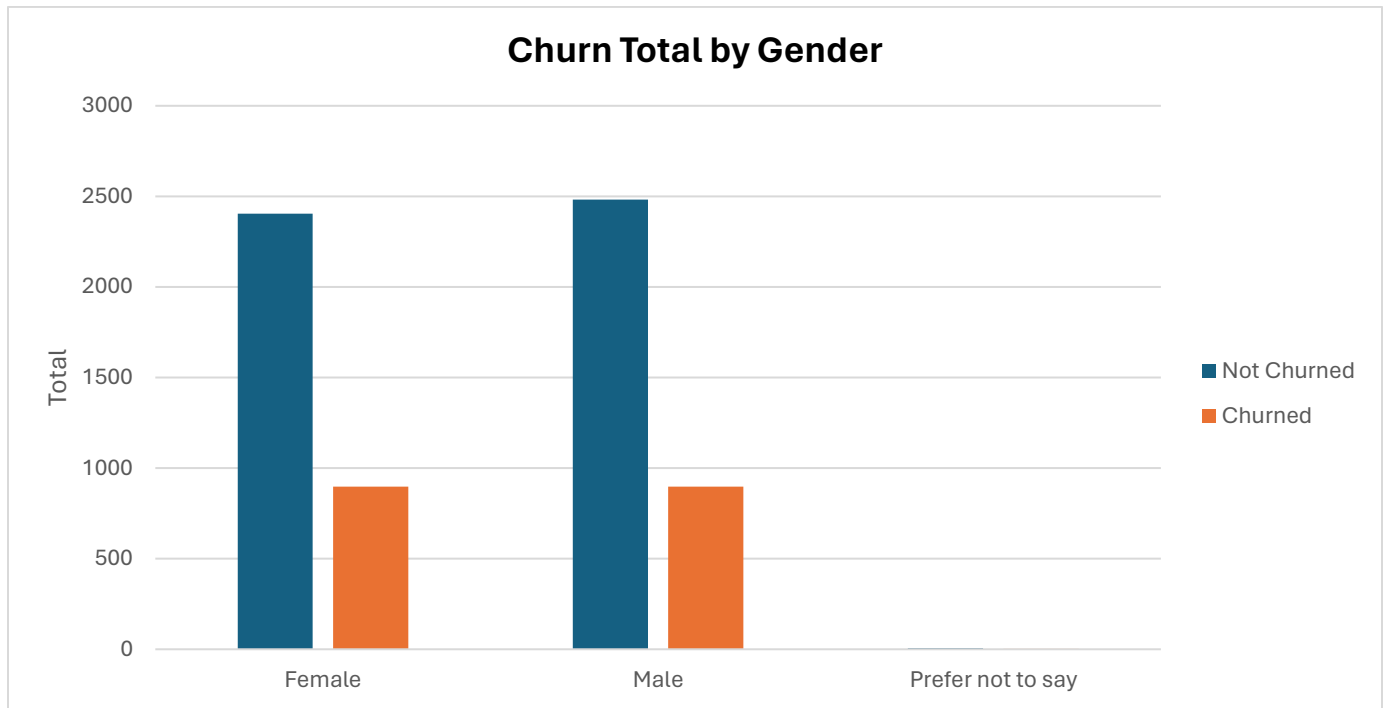


Figure 2

Figure 2 shows a column chart for the total number of customers who churned and haven't churned for each gender.

Observations:

- Almost equal numbers for both genders in both churn statuses (Yes and No).

Verdict:

- Gender doesn't correlate to churning.

- **Churn Percentage by Age Group**

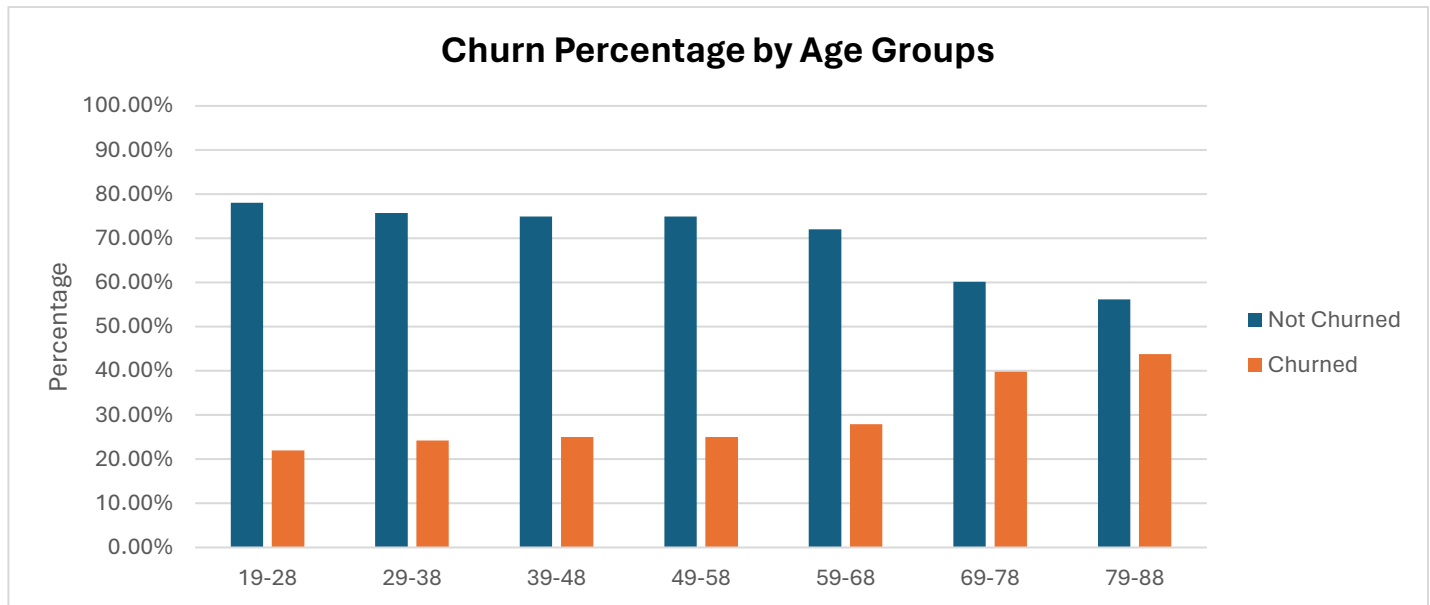


Figure 3

Figure 3 shows a column chart (histogram) of the percentages of total customers who churned and didn't churn for each age group.

Observations:

- The highest churn percentages were for older age groups (69-78 and 79-88).
- The lowest churn percentage were for the youngest age group (19-28).

Verdict:

- It appears that there is a positive correlation between increasing age and increased churning percentages.
- It appears that there is a negative correlation between decreasing age and decreasing churning percentages.

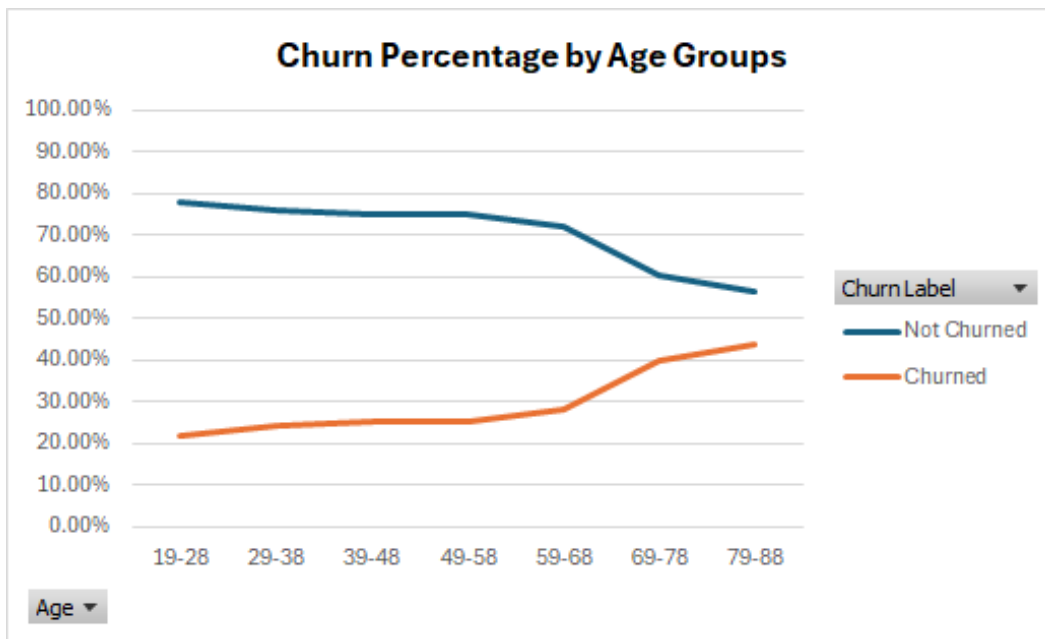


Figure 4

Figure 4 shows a line chart of the percentages of total customers who churned and didn't churn over each age group.

Observations:

- The line graph supports the previous verdict of a positive correlation between increasing age and increasing churn percentage.
- The line graph supports the previous verdict of a negative correlation between decreasing age and decreasing churn percentage.

Verdict:

- It appears that there is a positive correlation between increasing age and increased churning percentages.

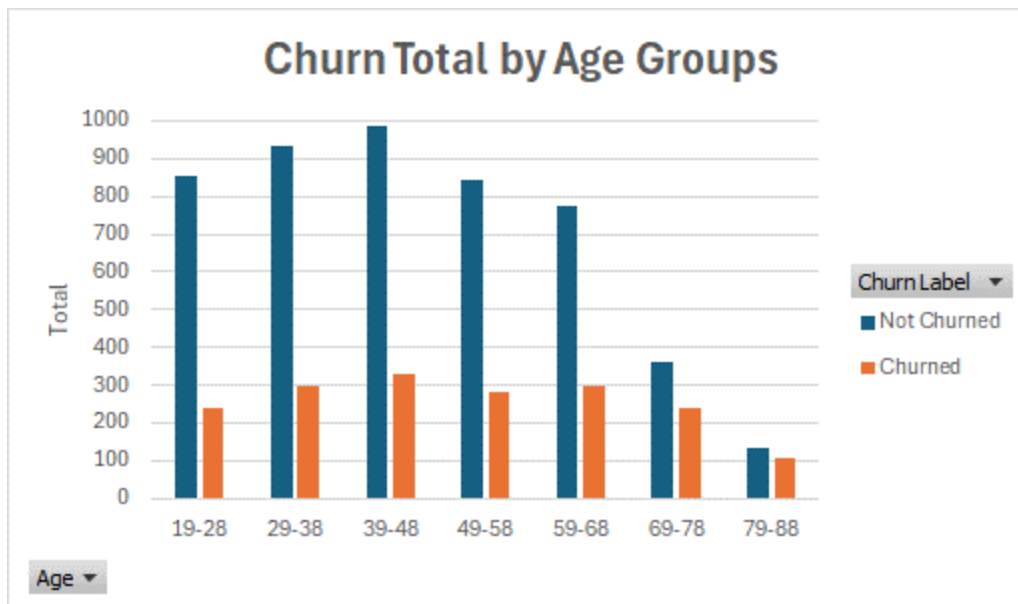


Figure 5

Figure 5 shows a column chart (histogram) of the total number customers who churned and didn't churn for each age group.

Observations:

- A positive skewed distribution of churn totals over all age groups
- Overall, more customers are in younger age groups and the highest total number of customers lies within ages 39-48.
- Smallest difference between churning and not churning was in age group 79-88.
- The least number of customers was in the age group 79-88.

Verdict:

- This graph supports previous results, however, the number of customers in older age groups was significantly less than younger age groups.

- **Churn Percentage by State**

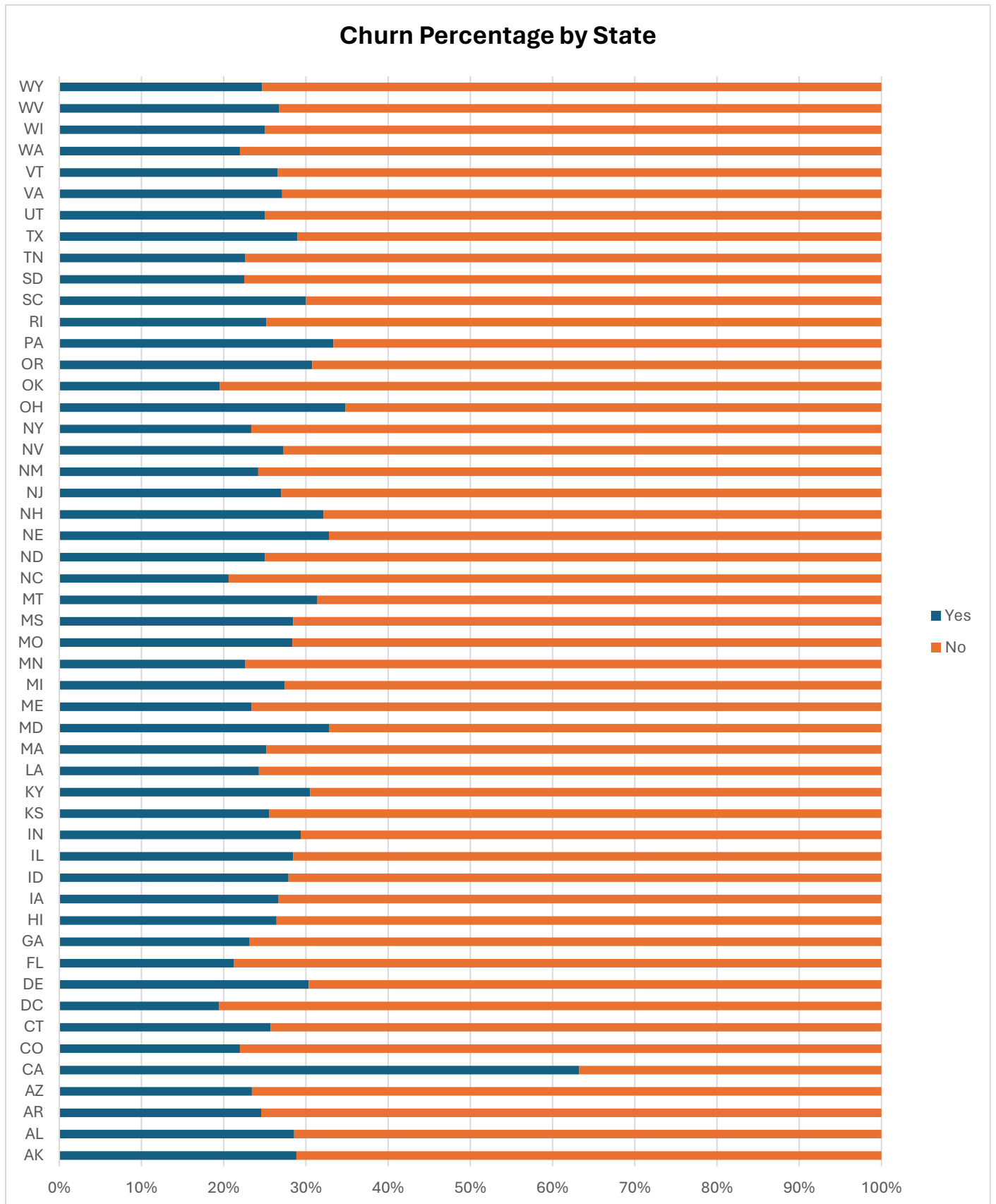


Figure 6

Figure 6 shows a stacked bar chart (100%) of the percentage of total number of customers who churned and didn't churn for each state.

Observations:

- California had the highest churn percentage among all states by a significant margin at around 63 %.
- Washington DC had the lowest churn percentage among all states at just under 20%

Verdict:

- California has a very high churn percentage compared to the annual average of the telecommunication industry (31%).
- CA, KY, MD, MT, NE, NH and OH (7 states) have had a higher churn percentage than the industry average of around 31%.

Account Type Insights

- Churns by account lengths (months)**

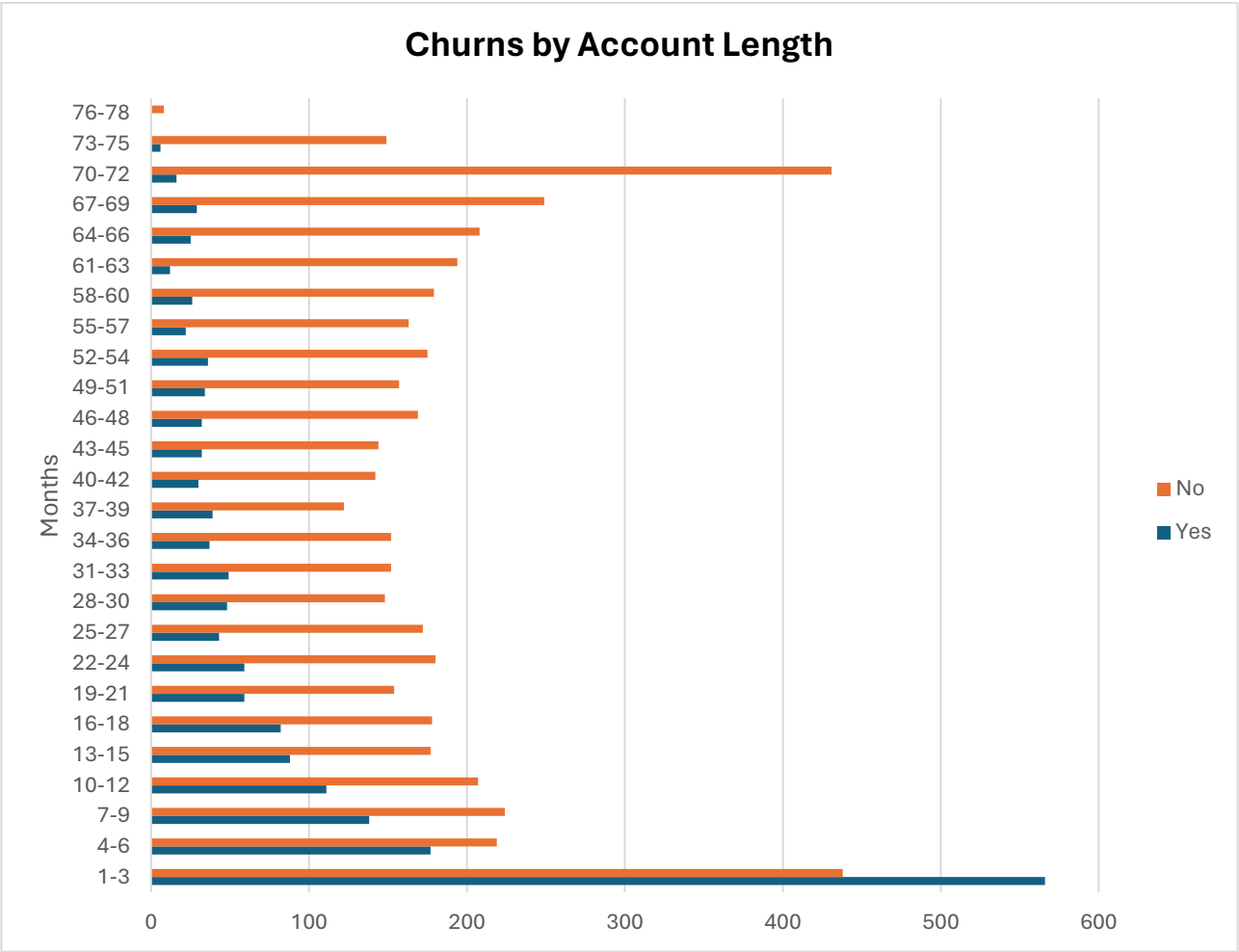


Figure 7

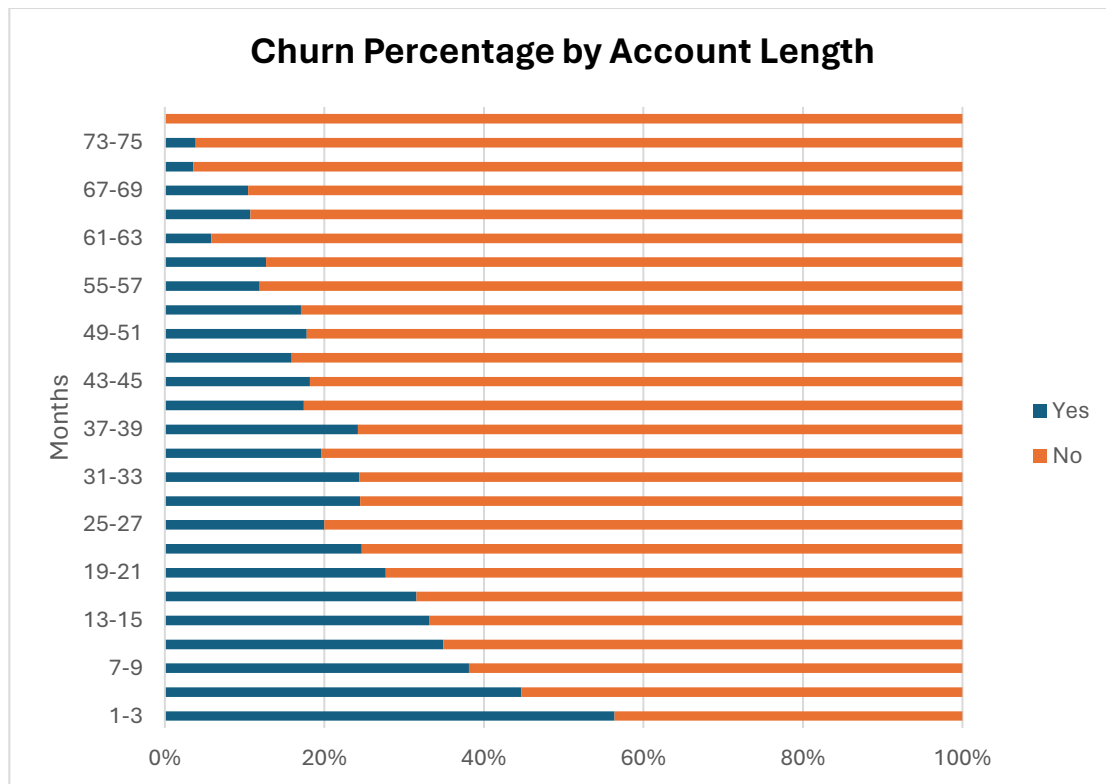


Figure 8

Figure 7 shows a bar chart of the total number of customers who churned and didn't churn for different account lengths (3 months intervals)

Observations:

- Overall, there are more records of newer customers. 1-3 months have the most customers.
- There is a negative correlation between account length and the total number of churns i.e. as account length increases, churn number decreases.
- The only interval that had more churns was the 1-3 months intervals.
- The only interval with no churns was 73-75 months.

Verdict:

- It is evident that loyal customers, i.e. customers with longer account lengths (in months), churn less than newer customers.

Figure 8 shows a stacked bar chart (100%) of the percentage of total number of customers who churned and didn't churn for different account lengths (3 months intervals).

Observations:

- The only interval with a higher churn percentage than 50% was 1-3 months.
- The only interval with a no churns was 73-75 months.
- As accounts get older, the churn percentage decreases.

Verdict:

- It is evident that loyal customers, i.e. customers with longer account lengths (in months), have a lower churn percentage than newer customers.
- **Churns by Data Plan (limited/unlimited)**

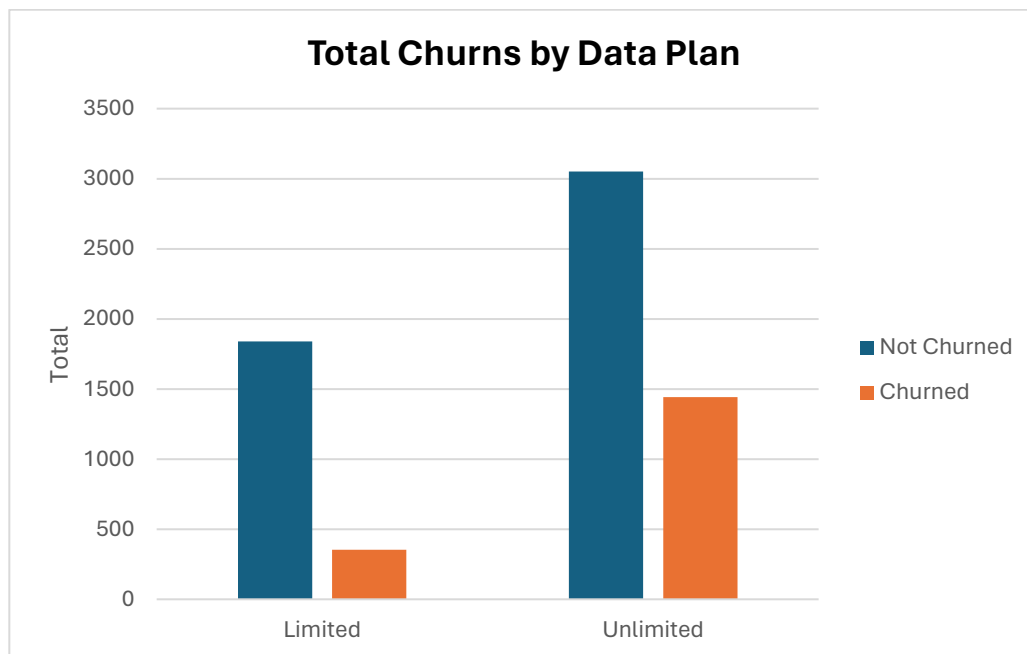


Figure 9

Figure 9 shows a column chart of the total number of customers who churned and didn't churn for both unlimited and limited data plans.

Observations:

- Overall, there are customers who use an unlimited data plan than a limited data plan.
- There is a smaller difference between "churned" and "not churned" values for customers with a limited data plan.

Verdict:

- Customers who have unlimited data plans have larger churn numbers in comparison to no churns.

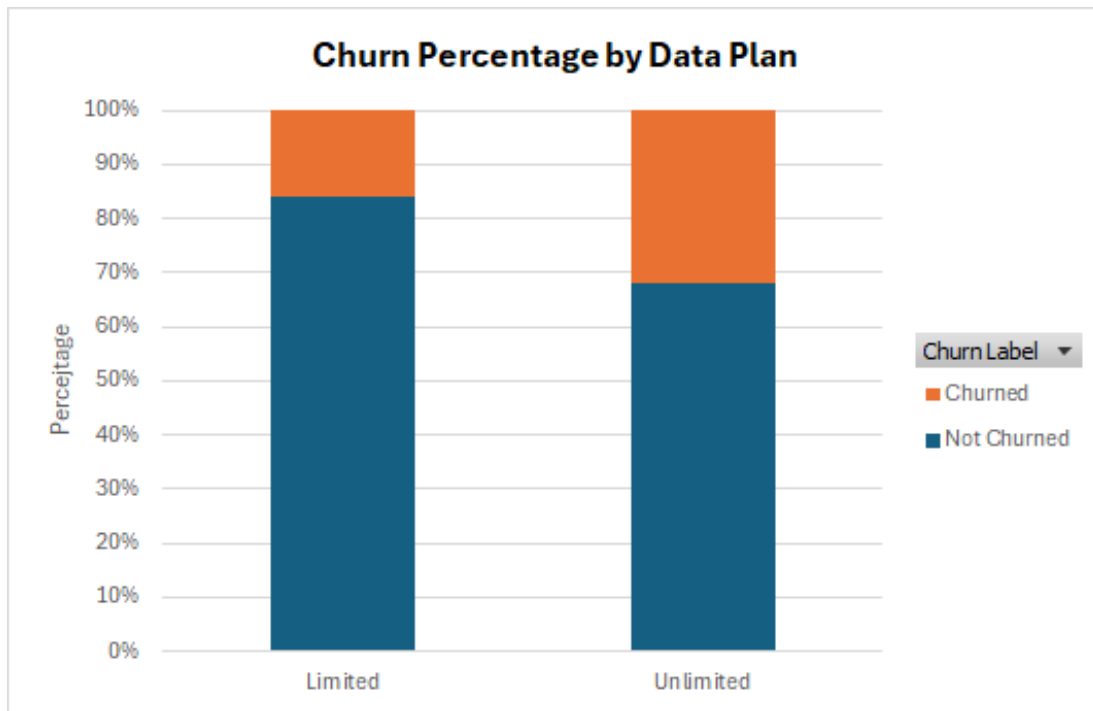


Figure 10

Figure 10 shows a stacked column chart (100%) of the percentage of total number of customers who churned and didn't churn for both unlimited and limited data plans.

Observations:

- There is a larger churn percentage for customers with unlimited data plans.

Verdict:

- Customers who have unlimited data plans are more likely to churn than customers with limited data plans.

Account Usage Insights

- **Churns by account usage:**

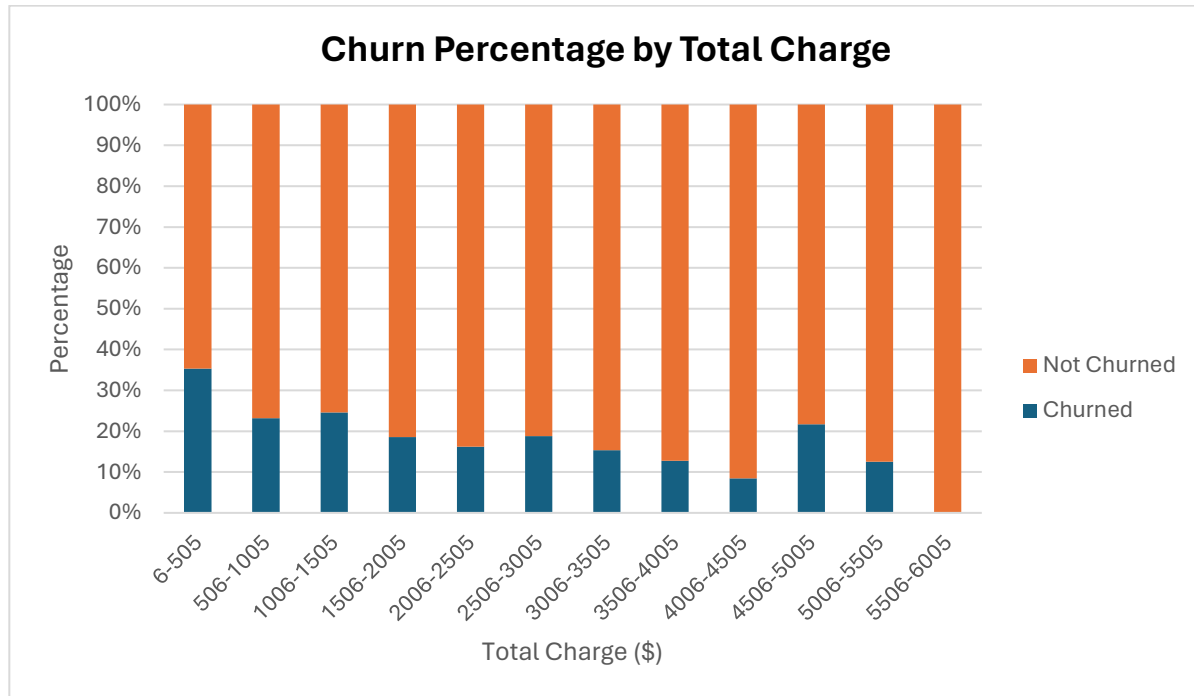


Figure 11

Figure 11 shows a stacked column chart (100%) of the percentage of total number of customers who churned and didn't churn for total charges intervals (in dollars).

Observations:

- The highest churn percentage was for customers who paid between 6-505 \$.
- There are fluctuations in churn percentages for different total charges.
- No churns in interval 5506-6005, however, there was only 1 customer in that interval.

Verdict:

- Customers in the first interval of charges had the highest churn rate.
- No big discrepancies in churn percentages and fluctuations over the intervals indicate a weak correlation between total charges and churn percentages.

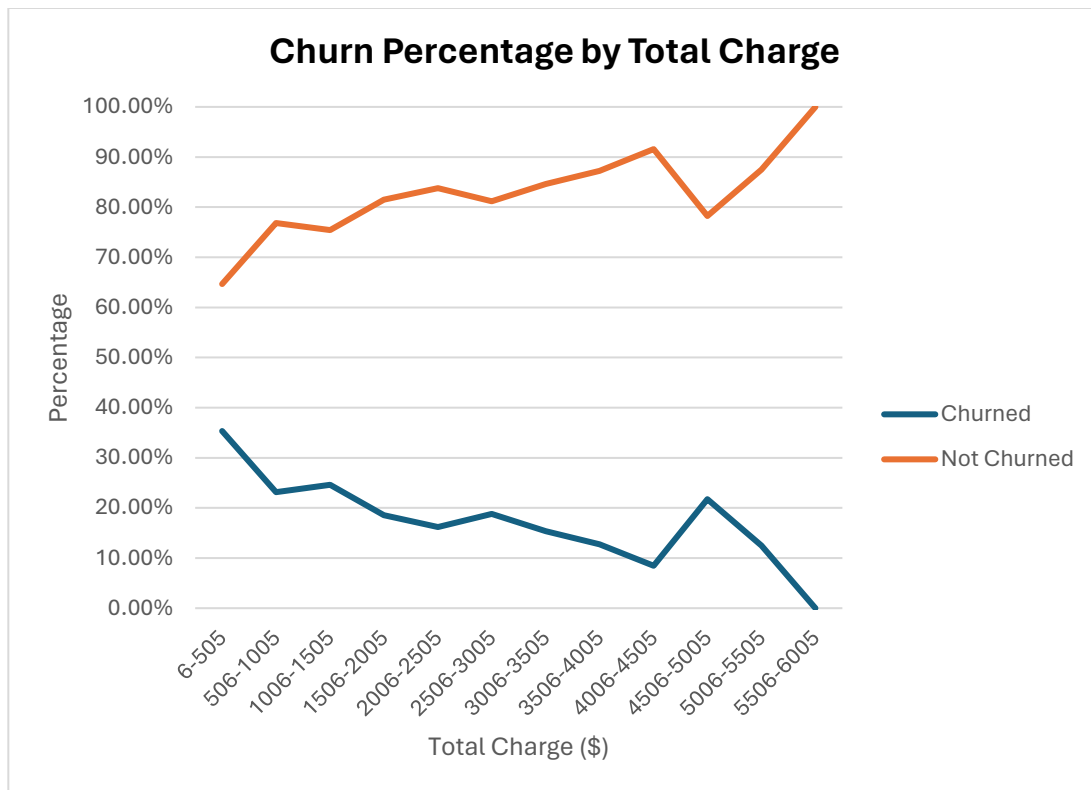


Figure 12

Figure 12 shows a line bar for percentage of customers who churned and haven't churned over total charges spent.

Observations:

- Negative correlation between churn percentage and total charges.

Verdict:

- Overall, customers with higher total charges tend to churn less.
- The 4506-5005 \$ total charge interval showed an outlying result compared to the trend of the line.

Churn Category and Reasons Insights

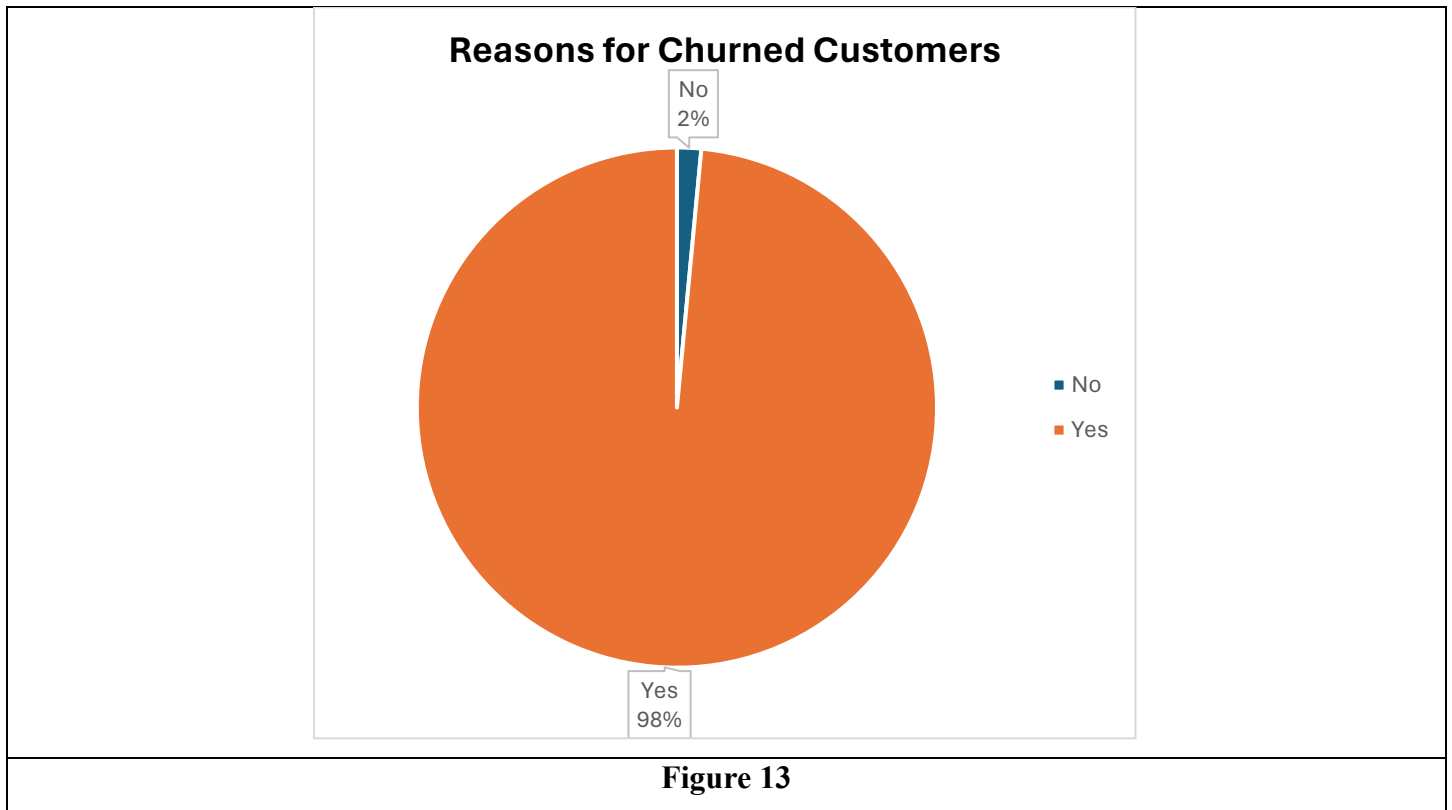


Figure 13 shows a pie chart displaying percentage of churned customers who wrote their reasons and those who did not.

Observations:

- 98% who churned wrote their reasons.

Verdict:

- Since 98% of those who churned wrote their reasons for churning, therefore, the reason would be a good indicator for our analysis.

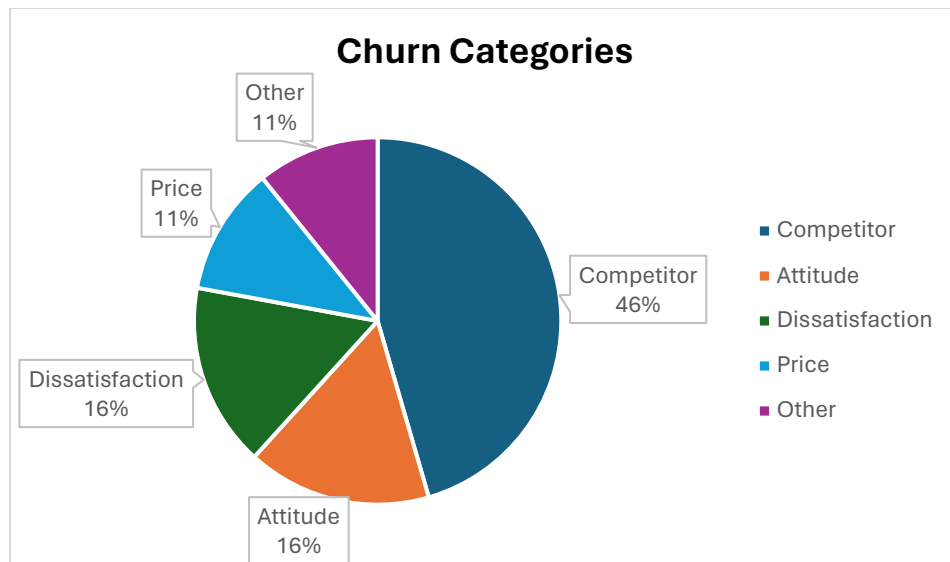


Figure 14

Figure 14 shows a pie chart displaying all churn categories as proportions of all churned customers.

Observations:

- 46% churned because of competitors

Verdict:

- Almost half of those who churn do so claimed that they churned to subscribe for other competitors services.

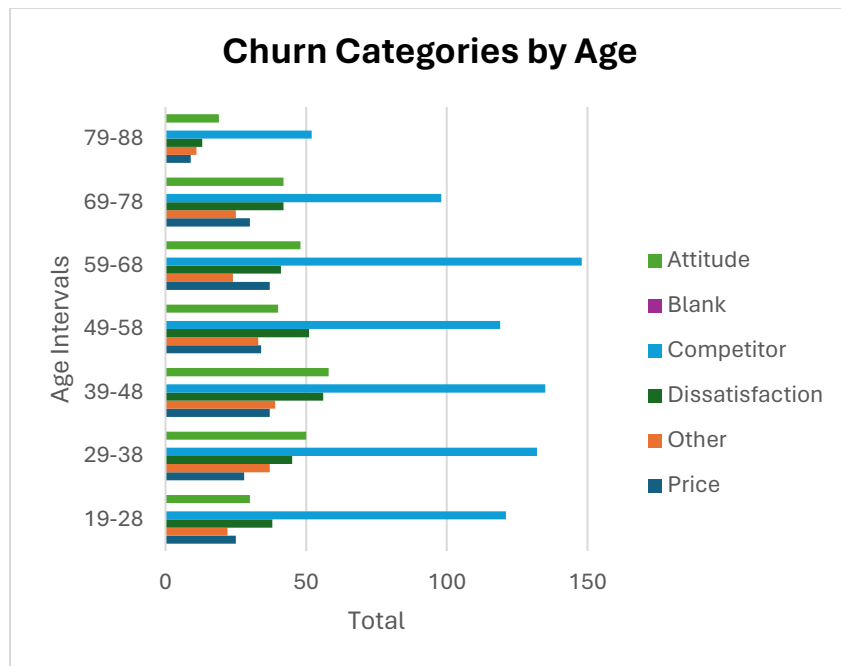


Figure 15

Figure 15 shows a bar chart displaying the count of all churn categories for each age group.

Observations:

- Most of those who left for competitors are in the 59-68 age group.
- 39-48 had more cases of dissatisfaction and attitude than all other groups.

Verdict:

- Churned customers in the 59-68 age group were the most to churn for a new competitor.
- Churned customers in the 39-48 age group were the most to churn as a result of dissatisfaction and attitude.

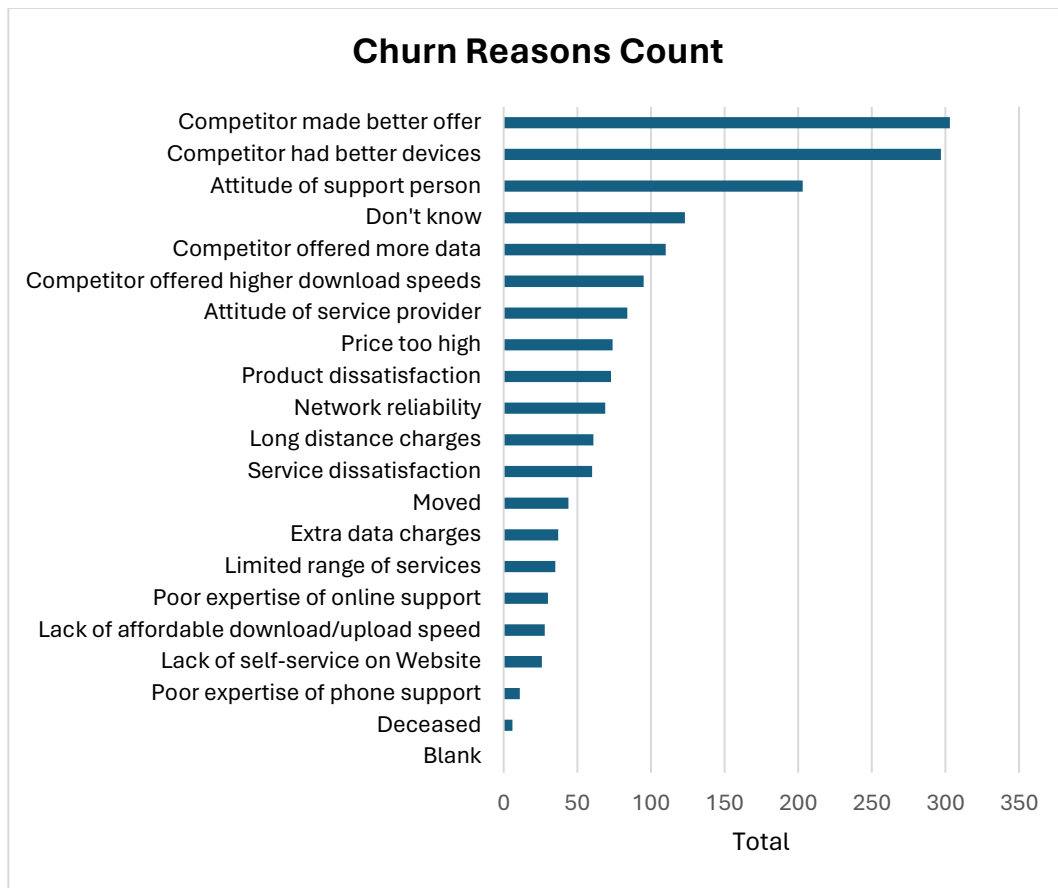


Figure 16

Figure 16 shows a bar chart displaying the count of all churn reasons provided.

Observations:

- By almost a hundred more than any other reason, churned customers stated that competitors made better offers and equally others stated that competitors provided better devices.
- As a standout 3rd reason for churning was the attitude of support person.

Verdict:

- It's evident that the main 2 significant reasons for churning were because of better competitor benefits (offers and devices).
- There are issues with attitudes of customer support personnel as it was the 3rd reason for churning.

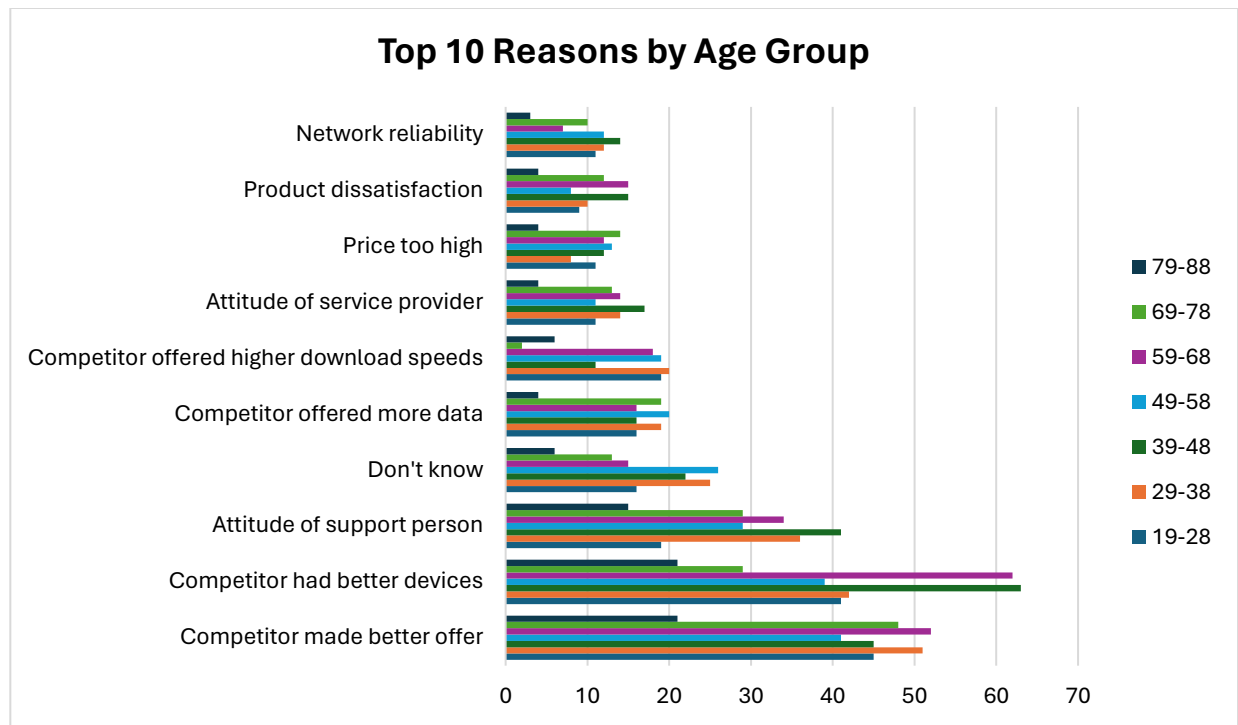


Figure 17

Figure 17 shows a bar chart displaying the count of the top 10 churn reasons provided for each age group.

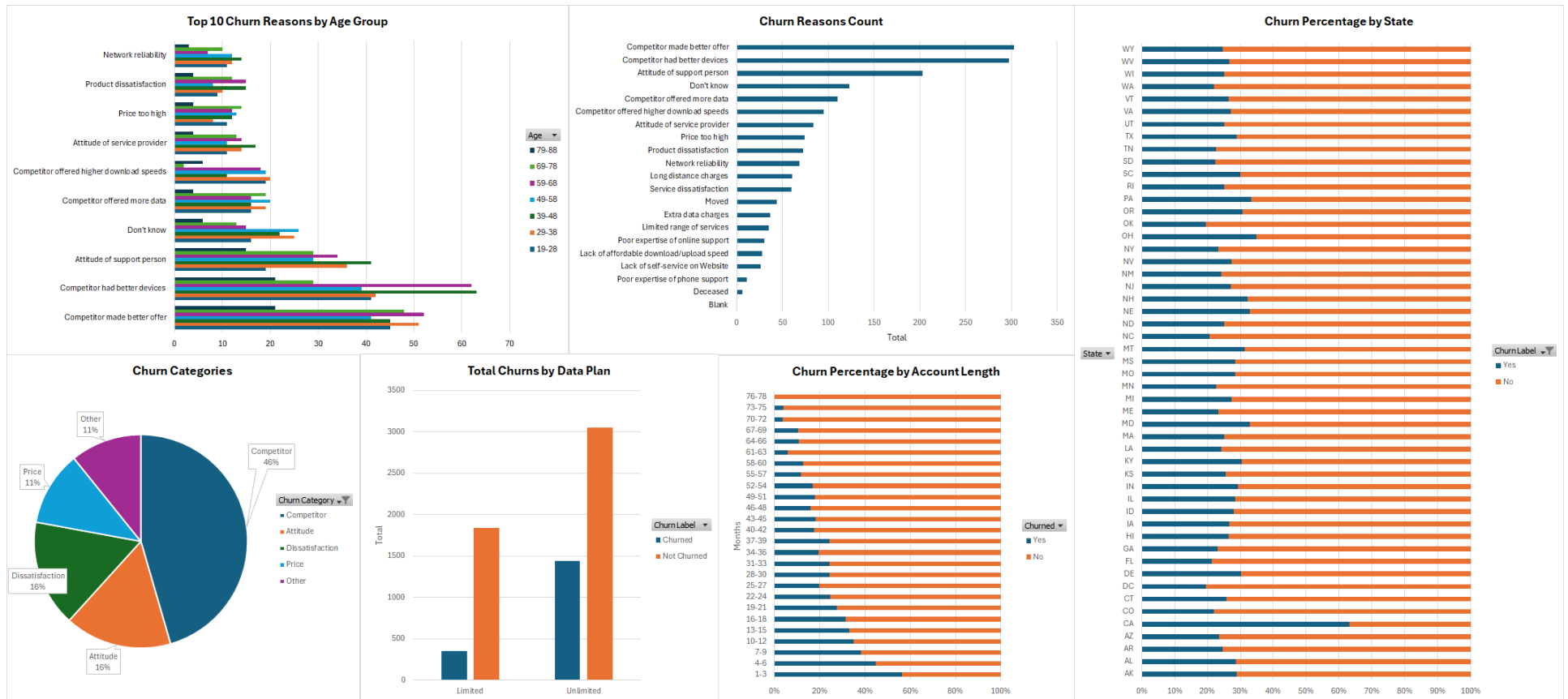
Observations:

- “Competitor made better offer” was the top churning reason for all age groups collectively.
- 39-48 age group had the most counts for the top 10 reasons combined.
- “Competitor had better devices” was stated as the highest reason for a particular age group (39-48) followed closely by the same reason for age group 59-68.

Verdict:

- This chart supports earlier observations:
 - a. Most churns occurred in age interval 39-48.
 - b. Most churns was a result of competitors being alluring and more attractive to customers.

Key Insights Dashboard



Note: Overall churn percentage was at 27%

Summary of Key Insights:

- 1- Overall, the churn percentage was reasonable, 27%, compared to the telecommunications industry which has an average annual churn rate of around 31%. However, our data doesn't pertain to a known time period.
- 2- Almost half of the customers who churned (46%), stated their reasons under the category of "Competitor".
- 3- The two most stated reasons for churning, around 300 counts each, were that competitors had better offers and that they provided better devices. Both reasons were each stated a 100 times more than the next highest reason which was "customer support attitude" at almost 200 counts.
- 4- California had the highest churn percentage at almost 63%. The next highest percentage was Ohio at around 35%.
- 5- More customers have unlimited data plans. However, almost 32% churned compared the 16% who had limited data plans and churned.
- 6- There was inverse proportionality between how old the account is and the churn percentage. The churn percentage for customers with 1-3 months old accounts was at around 56%.
- 7- The age group 39-48 years old had the most churns at 330 customers. While, the highest churn percentage was for the age group 79-88 at around 44%.
- 8- "Competitor had better devices" was stated as the highest reason for a particular age group (39-48 years) at 63 counts followed closely by the same reason for age group 59-68 at 62 counts.